

## **VIRGINIA DROUGHT MONITORING TASK FORCE**

### **Drought Status Report**

**April 18, 2011**

Statewide precipitation for the current water year, October 1, 2010 to April 18, 2011 was in the below normal range (84% of normal) with all drought evaluation regions except the Big Sandy, New River, Upper James, Shenandoah and Northern Virginia regions reporting below normal precipitation. Normal precipitation is defined as the mean precipitation for a thirty year period of record. Precipitation greater than 85% and less than 115% of normal is considered to be in the normal range. Statewide precipitation is in the normal range (89%) for the calendar year. Appendix A contains precipitation tables for periods dating from February 1, 2010 through April 18, 2011 provided by the Climatology Office of the University of Virginia.

As of April 17, 2011 the National Weather Service Climate Prediction Center 6-10 day climatologic outlooks call for above normal precipitation and above normal temperatures for the entire Commonwealth. The 8-14 day outlooks call for above normal precipitation for the entire central portion of the state, equal chances of below normal, normal and above normal precipitation for the eastern and western portions of the state, and above normal temperatures for the entire Commonwealth. The one month outlook calls for above normal precipitation and below normal temperature for the entire Commonwealth. The three month outlook calls for equal chances of below normal, normal and above normal precipitation and temperatures statewide.

The April 12, 2011 NOAA U.S. National Drought Monitor indicates “moderate drought” conditions exist in approximately 27% of the state, concentrated in the central, south central and southeastern portions of the Commonwealth, and “abnormally dry” drought conditions exist in approximately 22% of the Commonwealth. Only the western and northeastern portions of Virginia are reported as having no drought conditions (Appendix B). The Seasonal Drought Outlook for the United States from now through April 2011 forecasts “drought ongoing, some improvement” for the entire central portion of the Commonwealth and “no drought posted or predicted” for the remainder of the state. (Appendix D).

The Virginia Department of Health (VDH) reports that 5 systems are under voluntary water conservation requirements and 1 system is under mandatory water conservation requirements. Of the 34 systems listed in the VDH report, 4 are rated as having a “Better” overall water supply situation, one is rated as having a “Worse” overall water supply situation and all other systems are rated as being in a “Stable” situation (Appendix F).

Reports from the Climatology Office of the University of Virginia, the United States Geological Survey and the Virginia Department of Environmental Quality follow.

### **Report of the Climatology Office of the University of Virginia**

**April 19, 2011**

March and early April have brought well above normal rainfall across the Commonwealth, except for most of the Tidewater. Nonetheless, taking into account all of the colder months (October through April), a different picture emerges. Total precipitation since October began, shows only the two farthest southwestern regions to have posted above normal (slightly) numbers. Over this critical period, most of the entire Virginia Tidewater has received no more than 70% of normal precipitation. This highlights the relatively limited amount of moisture available for replenishment of deficits accrued during last year’s growing season.

Across Virginia, the growing season has effectively begun and opportunities to make up deficits are rapidly diminishing. Rising temperatures and water uptake by plants will quickly overtake even normal precipitation

amounts. In addition, we are transitioning from the months dominated by more widespread precipitation events (related to winter storms and frontal-passages) to those characterized more by thunderstorm activity. By their nature, thunderstorms bring rainfall that can vary considerably across relatively small areas. Therefore, the probability is very high that current deficits will be carried forward and augmented through the growing season.

### **United States Geological Survey Streamflow and Ground Water Levels**

Statewide precipitation events have temporarily increased surface-water flows (Appendix G) and groundwater levels (Appendix H) at gages across the State except for southeast portions of Virginia. However, because of low antecedent soil moisture, increased air temperatures, and the beginning of plant leaf out, much of the potential groundwater recharge has been diverted to overcoming soil moisture deficit, evaporation, and transpiration. Below normal drought conditions have been persistent in southeast Virginia as evidenced by 1-day average streamflow statistics (Appendix I).

Streamflow, which registered moderate increases from the storms, will decrease rapidly back to the below-normal levels observed before the storms. Streamflow at most gages in the State are currently recording discharges in the normal to above normal ranges (Appendix G). Gages in the York, lower James, and Chowan River Basin are recording below-normal discharges.

Water levels in many of the Climate Response wells across the State have shown little response to the storms. This is partially the result of increased evapotranspiration intercepting precipitation that may have become recharge to the groundwater system. Some wells have shown increased water levels in response to precipitation. These wells may be influenced less by evapotranspiration. Groundwater levels at 9 of 19 wells are currently normal to above normal (Appendix H). Levels at the remaining 10 wells are below normal for this time of year.

### **Virginia Department of Environmental Quality Conditions of Major Reservoirs**

Levels of large reservoirs statewide are at or above normal levels. Four large multi-purpose reservoirs are identified as drought indicators in the *Virginia Drought Assessment and Response Plan* (Plan); Smith Mountain Lake, Lake Moomaw, Lake Anna and Kerr Reservoir. While all four of these reservoirs are currently at levels above their Drought Watch stages, Smith Mountain Lake is only 0.80 foot above its Drought Watch stage. Below is a summary of large reservoir conditions:

- On April 14, Lake Moomaw on the Jackson River was at 1585.87 feet, and was dropping at a rate of approximately 1.17 ft per day. Approximately 117% of conservation storage remains. Lake Moomaw is 20.87 ft above its Drought Watch level (1565 feet MSL).
- On April 14, Kerr Reservoir was approximately 1.45 ft above the Guide Curve and was anticipated to drop 0.33 ft by April 21, 2011. Drought Watch status is reached at greater than 3 ft below the Guide Curve.
- On April 14, Smith Mountain Lake was at elevation 793.80 ft. The Drought Watch stage for Smith Mountain Lake is elevation 793 feet and below.
- On April 14, Lake Anna was at elevation 250 ft (2 ft above drought watch). The Drought Watch stage for Lake Anna is elevation 248 feet and below.

# APPENDIX A

## Precipitation Departures by Drought Evaluation Region

### PRELIMINARY PRECIPITATION SUMMARY

Prepared:  
4/19/11

	DROUGHT REGION	OBSERVED	Apr 1, 2011 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	4.03	2.26	1.77	178%
2	New River	4.13	2.13	2.00	194%
3	Roanoke	3.24	2.28	0.96	142%
4	Upper James	5.06	2.04	3.02	248%
5	Middle James	2.53	2.00	0.53	126%
6	Shenandoah	5.08	1.75	3.32	290%
7	Northern Virginia	3.61	1.98	1.63	182%
8	Northern Piedmont	4.14	1.97	2.17	210%
9	Chowan	1.44	2.06	-0.62	70%
10	Northern Coastal Plain	1.51	1.85	-0.34	82%
11	York-James	1.09	1.98	-0.89	55%
12	Southeast Virginia	1.26	1.95	-0.69	65%
13	Eastern Shore	0.79	1.75	-0.96	45%
	Statewide	3.23	2.05	1.17	157%

	DROUGHT REGION	OBSERVED	Mar 1, 2011 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	10.70	6.51	4.19	164%
2	New River	10.55	5.80	4.75	182%
3	Roanoke	8.56	6.55	2.01	131%
4	Upper James	10.78	5.83	4.95	185%
5	Middle James	7.93	6.06	1.87	131%
6	Shenandoah	9.40	4.95	4.45	190%
7	Northern Virginia	8.49	5.64	2.85	151%
8	Northern Piedmont	9.65	5.78	3.87	167%
9	Chowan	5.56	6.43	-0.87	87%
10	Northern Coastal Plain	5.51	6.13	-0.62	90%
11	York-James	4.08	6.67	-2.59	61%
12	Southeast Virginia	4.66	6.15	-1.49	76%
13	Eastern Shore	4.04	6.06	-2.03	67%
	Statewide	8.37	6.09	2.28	137%

	DROUGHT REGION	OBSERVED	Feb 1, 2011 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	13.00	10.09	2.91	129%
2	New River	12.35	8.73	3.62	141%
3	Roanoke	10.02	9.86	0.16	102%
4	Upper James	12.27	8.68	3.59	141%
5	Middle James	9.33	9.18	0.14	102%

6	Shenandoah	11.06	7.36	3.70	150%
7	Northern Virginia	10.38	8.31	2.07	125%
8	Northern Piedmont	10.97	8.75	2.22	125%
9	Chowan	6.74	9.60	-2.86	70%
10	Northern Coastal Plain	6.68	9.27	-2.60	72%
11	York-James	5.36	10.20	-4.84	53%
12	Southeast Virginia	6.27	9.65	-3.38	65%
13	Eastern Shore	5.49	9.25	-3.77	59%
	Statewide	9.92	9.22	0.70	108%

	DROUGHT REGION	OBSERVED	Jan 1, 2011 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	14.78	13.82	0.96	107%
2	New River	13.26	11.94	1.32	111%
3	Roanoke	11.19	13.78	-2.59	81%
4	Upper James	13.18	11.96	1.22	110%
5	Middle James	10.86	12.84	-1.98	85%
6	Shenandoah	12.08	10.21	1.87	118%
7	Northern Virginia	12.15	11.59	0.56	105%
8	Northern Piedmont	12.45	12.27	0.18	101%
9	Chowan	8.34	13.71	-5.37	61%
10	Northern Coastal Plain	8.24	13.02	-4.79	63%
11	York-James	7.82	14.34	-6.52	55%
12	Southeast Virginia	9.35	13.81	-4.46	68%
13	Eastern Shore	8.35	12.81	-4.46	65%
	Statewide	11.40	12.86	-1.46	89%

	DROUGHT REGION	OBSERVED	Dec 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	19.33	17.46	1.87	111%
2	New River	17.03	14.65	2.38	116%
3	Roanoke	14.39	17.03	-2.64	84%
4	Upper James	16.13	14.91	1.22	108%
5	Middle James	13.56	16.01	-2.46	85%
6	Shenandoah	14.56	12.80	1.76	114%
7	Northern Virginia	13.94	14.69	-0.75	95%
8	Northern Piedmont	14.98	15.55	-0.57	96%
9	Chowan	11.59	16.73	-5.14	69%
10	Northern Coastal Plain	9.96	16.30	-6.35	61%
11	York-James	9.80	17.73	-7.93	55%
12	Southeast Virginia	12.20	16.99	-4.79	72%
13	Eastern Shore	11.48	16.05	-4.57	72%
	Statewide	14.37	15.98	-1.61	90%

	DROUGHT REGION	OBSERVED	Nov 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	22.66	20.74	1.92	109%
2	New River	20.08	17.68	2.40	114%
3	Roanoke	16.74	20.39	-3.65	82%

4	Upper James	18.64	18.27	0.37	102%
5	Middle James	15.89	19.52	-3.64	81%
6	Shenandoah	16.59	15.85	0.73	105%
7	Northern Virginia	15.65	18.10	-2.45	86%
8	Northern Piedmont	17.26	19.35	-2.09	89%
9	Chowan	13.45	19.84	-6.39	68%
10	Northern Coastal Plain	11.98	19.44	-7.47	62%
11	York-James	11.38	21.10	-9.72	54%
12	Southeast Virginia	13.92	20.06	-6.14	69%
13	Eastern Shore	12.69	18.99	-6.31	67%
	Statewide	16.70	19.21	-2.51	87%

	DROUGHT REGION	OBSERVED	Oct 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	25.07	23.62	1.46	106%
2	New River	22.00	20.85	1.15	106%
3	Roanoke	19.56	24.10	-4.54	81%
4	Upper James	20.86	21.52	-0.66	97%
5	Middle James	18.63	23.36	-4.74	80%
6	Shenandoah	17.83	19.04	-1.21	94%
7	Northern Virginia	18.29	21.58	-3.29	85%
8	Northern Piedmont	19.55	23.34	-3.79	84%
9	Chowan	15.99	23.42	-7.43	68%
10	Northern Coastal Plain	14.68	22.95	-8.28	64%
11	York-James	14.93	24.63	-9.70	61%
12	Southeast Virginia	16.96	23.72	-6.76	71%
13	Eastern Shore	15.34	22.20	-6.87	69%
	Statewide	19.15	22.71	-3.56	84%

	DROUGHT REGION	OBSERVED	Sep 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	27.39	27.08	0.31	101%
2	New River	25.96	24.26	1.70	107%
3	Roanoke	25.81	28.33	-2.52	91%
4	Upper James	26.38	25.02	1.36	105%
5	Middle James	24.73	27.49	-2.76	90%
6	Shenandoah	22.83	22.71	0.12	101%
7	Northern Virginia	24.71	25.65	-0.94	96%
8	Northern Piedmont	25.85	27.62	-1.78	94%
9	Chowan	24.29	27.85	-3.56	87%
10	Northern Coastal Plain	22.36	27.04	-4.69	83%
11	York-James	24.19	29.53	-5.34	82%
12	Southeast Virginia	30.24	28.15	2.09	107%
13	Eastern Shore	19.90	25.81	-5.91	77%
	Statewide	25.19	26.71	-1.52	94%

	DROUGHT REGION	OBSERVED	Aug 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	32.52	30.91	1.61	105%

2	New River	31.20	27.57	3.63	113%
3	Roanoke	32.24	32.05	0.19	101%
4	Upper James	29.35	28.35	1.00	104%
5	Middle James	28.92	31.31	-2.39	92%
6	Shenandoah	25.53	26.04	-0.51	98%
7	Northern Virginia	28.97	29.50	-0.53	98%
8	Northern Piedmont	29.25	31.44	-2.19	93%
9	Chowan	28.56	32.16	-3.60	89%
10	Northern Coastal Plain	26.70	30.90	-4.21	86%
11	York-James	25.89	34.40	-8.51	75%
12	Southeast Virginia	33.43	33.27	0.16	100%
13	Eastern Shore	24.68	29.68	-5.01	83%
	Statewide	29.56	30.54	-0.98	97%

	DROUGHT REGION	OBSERVED	Jul 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	36.25	35.39	0.87	102%
2	New River	34.04	31.36	2.68	109%
3	Roanoke	35.50	36.44	-0.94	97%
4	Upper James	33.01	32.39	0.62	102%
5	Middle James	30.78	35.72	-4.94	86%
6	Shenandoah	28.91	29.80	-0.89	97%
7	Northern Virginia	32.44	33.27	-0.83	97%
8	Northern Piedmont	31.58	35.84	-4.26	88%
9	Chowan	30.25	36.67	-6.42	82%
10	Northern Coastal Plain	28.16	35.35	-7.19	80%
11	York-James	29.26	39.50	-10.24	74%
12	Southeast Virginia	37.16	38.34	-1.18	97%
13	Eastern Shore	26.76	33.68	-6.92	79%
	Statewide	32.33	34.88	-2.55	93%

	DROUGHT REGION	OBSERVED	Jun 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	41.03	39.53	1.51	104%
2	New River	36.61	35.21	1.40	104%
3	Roanoke	37.59	40.33	-2.74	93%
4	Upper James	34.86	36.10	-1.24	97%
5	Middle James	32.66	39.23	-6.58	83%
6	Shenandoah	30.74	33.51	-2.78	92%
7	Northern Virginia	33.78	37.13	-3.35	91%
8	Northern Piedmont	33.99	39.85	-5.87	85%
9	Chowan	32.77	40.32	-7.55	81%
10	Northern Coastal Plain	30.17	38.91	-8.74	78%
11	York-James	30.19	42.91	-12.72	70%
12	Southeast Virginia	40.40	41.95	-1.55	96%
13	Eastern Shore	28.29	36.66	-8.37	77%
	Statewide	34.70	38.67	-3.97	90%

	DROUGHT REGION	OBSERVED	May 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	46.48	44.35	2.14	105%
2	New River	40.42	39.42	1.00	103%
3	Roanoke	42.23	44.66	-2.43	95%
4	Upper James	38.67	40.38	-1.71	96%
5	Middle James	36.70	43.47	-6.77	84%
6	Shenandoah	33.79	37.35	-3.56	90%
7	Northern Virginia	38.42	41.47	-3.05	93%
8	Northern Piedmont	37.66	44.07	-6.42	85%
9	Chowan	38.18	44.41	-6.22	86%
10	Northern Coastal Plain	32.56	43.07	-10.51	76%
11	York-James	35.09	47.18	-12.09	74%
12	Southeast Virginia	44.60	45.81	-1.21	97%
13	Eastern Shore	30.40	40.18	-9.78	76%
	Statewide	38.86	42.93	-4.07	91%

	DROUGHT REGION	OBSERVED	Apr 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	49.16	48.11	1.06	102%
2	New River	42.27	42.97	-0.70	98%
3	Roanoke	43.99	48.46	-4.47	91%
4	Upper James	40.37	43.78	-3.41	92%
5	Middle James	38.46	46.81	-8.36	82%
6	Shenandoah	35.15	40.27	-5.13	87%
7	Northern Virginia	40.01	44.77	-4.76	89%
8	Northern Piedmont	39.19	47.36	-8.17	83%
9	Chowan	39.62	47.84	-8.21	83%
10	Northern Coastal Plain	34.16	46.16	-12.00	74%
11	York-James	36.04	50.48	-14.44	71%
12	Southeast Virginia	45.79	49.06	-3.27	93%
13	Eastern Shore	31.59	43.10	-11.52	73%
	Statewide	40.58	46.35	-5.77	88%

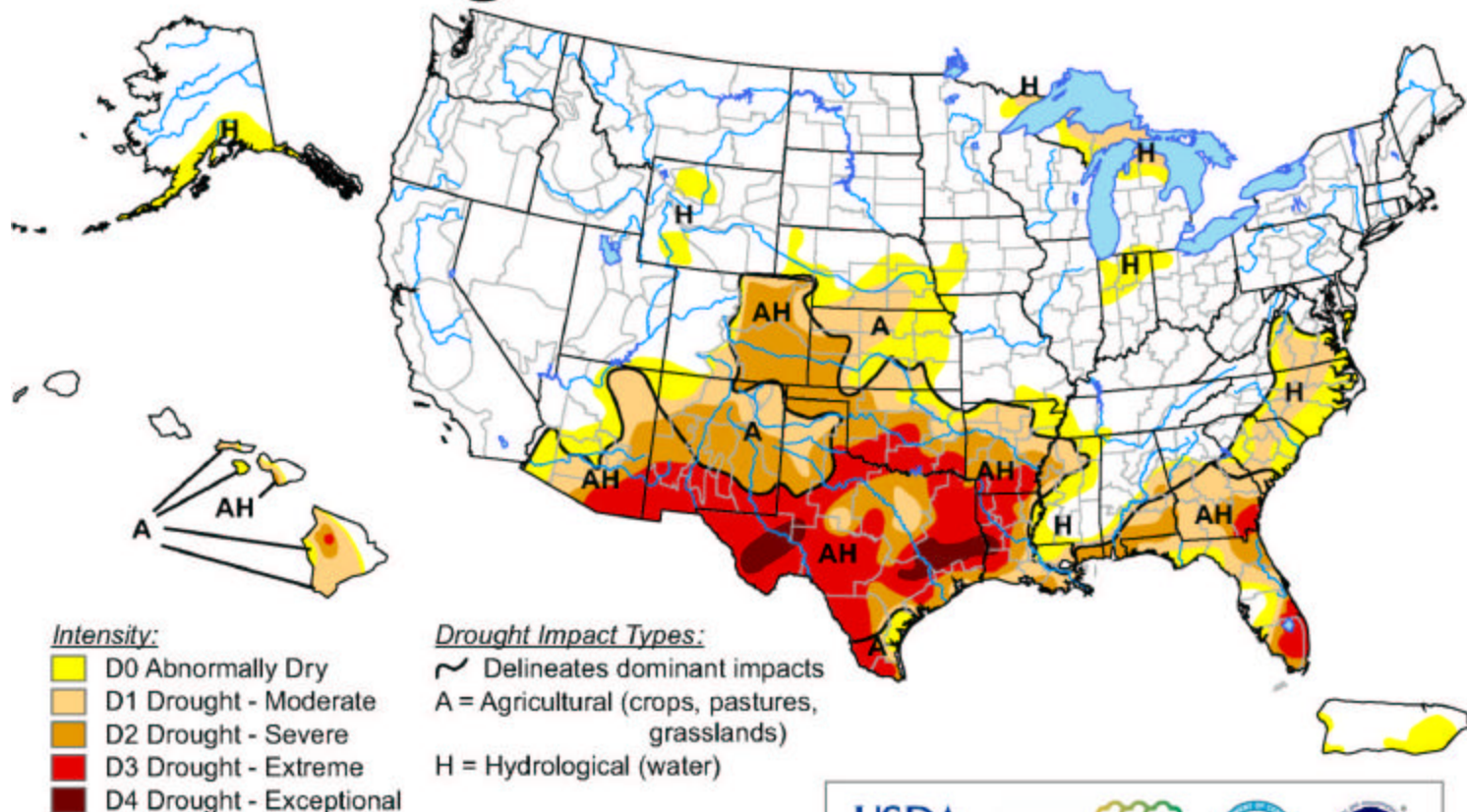
	DROUGHT REGION	OBSERVED	Mar 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	52.04	52.36	-0.32	99%
2	New River	46.34	46.64	-0.30	99%
3	Roanoke	49.12	52.73	-3.61	93%
4	Upper James	44.47	47.57	-3.10	93%
5	Middle James	43.59	50.87	-7.28	86%
6	Shenandoah	39.86	43.47	-3.61	92%
7	Northern Virginia	43.76	48.43	-4.67	90%
8	Northern Piedmont	44.12	51.17	-7.06	86%
9	Chowan	44.21	52.21	-8.00	85%
10	Northern Coastal Plain	40.31	50.44	-10.13	80%
11	York-James	41.65	55.17	-13.52	75%
12	Southeast Virginia	52.09	53.26	-1.17	98%
13	Eastern Shore	37.82	47.41	-9.60	80%
	Statewide	45.28	50.39	-5.12	90%

	DROUGHT REGION	OBSERVED	Feb 1, 2010 NORMAL	- Apr 18, 2011 DEPARTURE	% OF NORM.
1	Big Sandy	54.81	55.94	-1.13	98%
2	New River	48.75	49.57	-0.82	98%
3	Roanoke	51.78	56.04	-4.26	92%
4	Upper James	46.79	50.42	-3.63	93%
5	Middle James	46.82	53.99	-7.17	87%
6	Shenandoah	42.74	45.88	-3.14	93%
7	Northern Virginia	47.80	51.10	-3.30	94%
8	Northern Piedmont	46.64	54.14	-7.50	86%
9	Chowan	47.46	55.38	-7.92	86%
10	Northern Coastal Plain	43.60	53.58	-9.98	81%
11	York-James	45.34	58.70	-13.36	77%
12	Southeast Virginia	55.84	56.76	-0.92	98%
13	Eastern Shore	41.70	50.60	-8.91	82%
	Statewide	48.25	53.52	-5.28	90%

## APPENDIX B

# U.S. Drought Monitor

April 12, 2011  
Valid 8 a.m. EDT



The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying text summary  
for forecast statements.

<http://drought.unl.edu/dm>



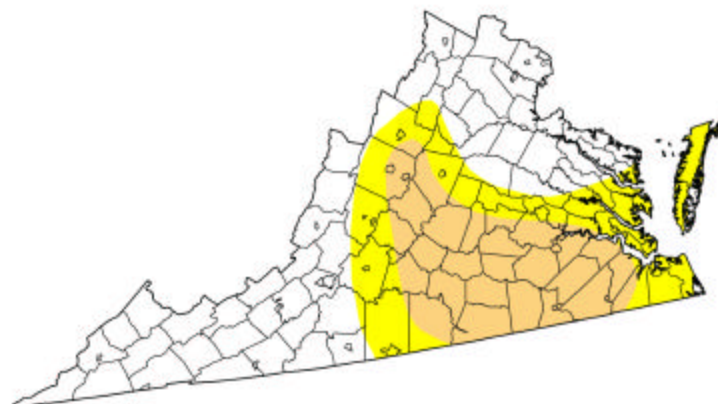
Released Thursday, April 14, 2011  
Author: Anthony Artusa, NOAA/NWS/NCEP/CPC

# APPENDIX C

## U.S. Drought Monitor Virginia

April 12, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	50.52	49.48	26.72	0.00	0.00	0.00
Last Week (04/05/2011 map)	39.74	60.26	30.75	0.00	0.00	0.00
3 Months Ago (01/11/2011 map)	25.20	74.80	0.00	0.00	0.00	0.00
Start of Calendar Year (12/28/2010 map)	81.67	18.33	0.00	0.00	0.00	0.00
Start of Water Year (09/28/2010 map)	13.71	86.29	49.67	28.15	0.79	0.00
One Year Ago (04/06/2010 map)	100.00	0.00	0.00	0.00	0.00	0.00



### Intensity:

<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D0 Abnormally Dry	<span style="background-color: red; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D3 Drought - Extreme
<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D1 Drought - Moderate	<span style="background-color: darkred; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D4 Drought - Exceptional
<span style="background-color: darkorange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D2 Drought - Severe	

The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying text summary  
for forecast statements.

<http://drought.unl.edu/dm>

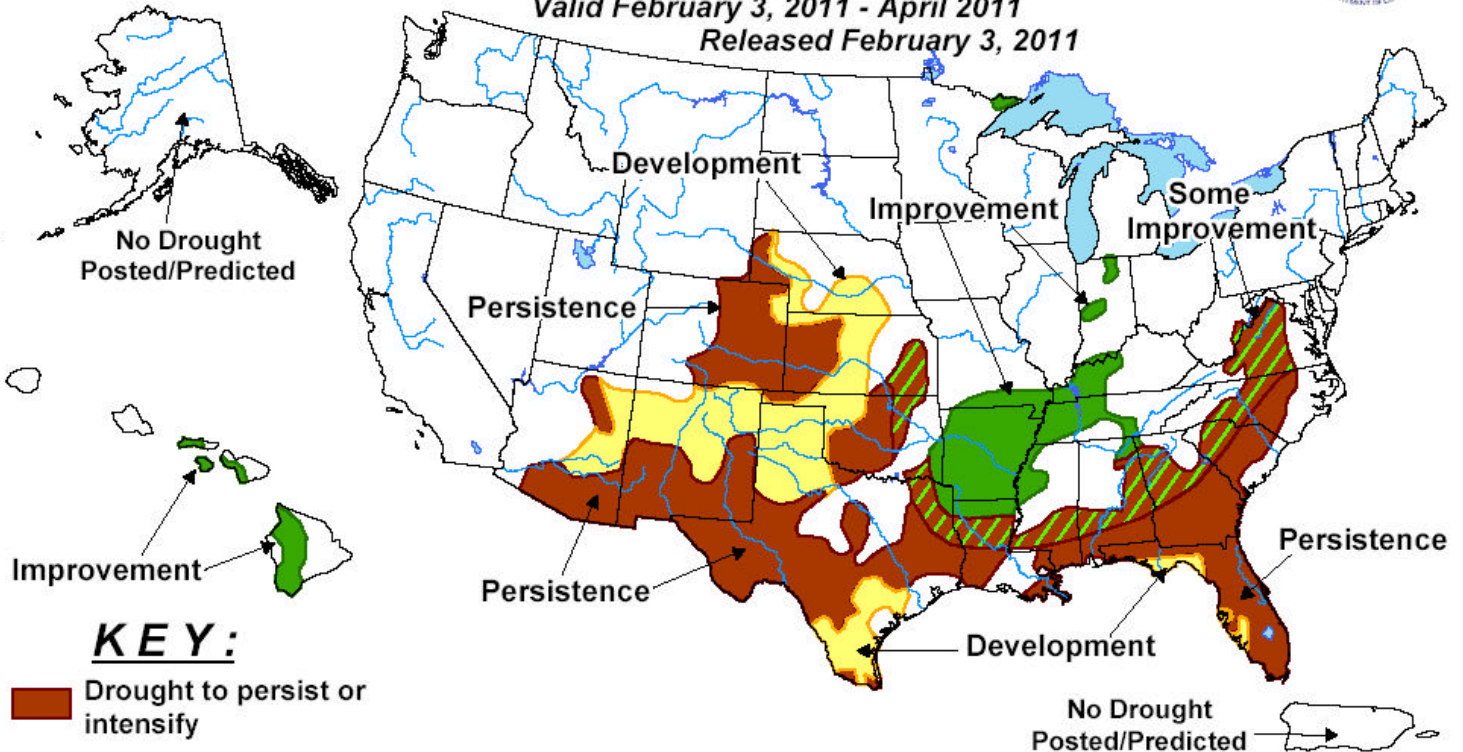


Released Thursday, April 14, 2011  
Anthony Artusa, NOAA/NWS/NCEP/CPC

# APPENDIX D



## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period Valid February 3, 2011 - April 2011 Released February 3, 2011



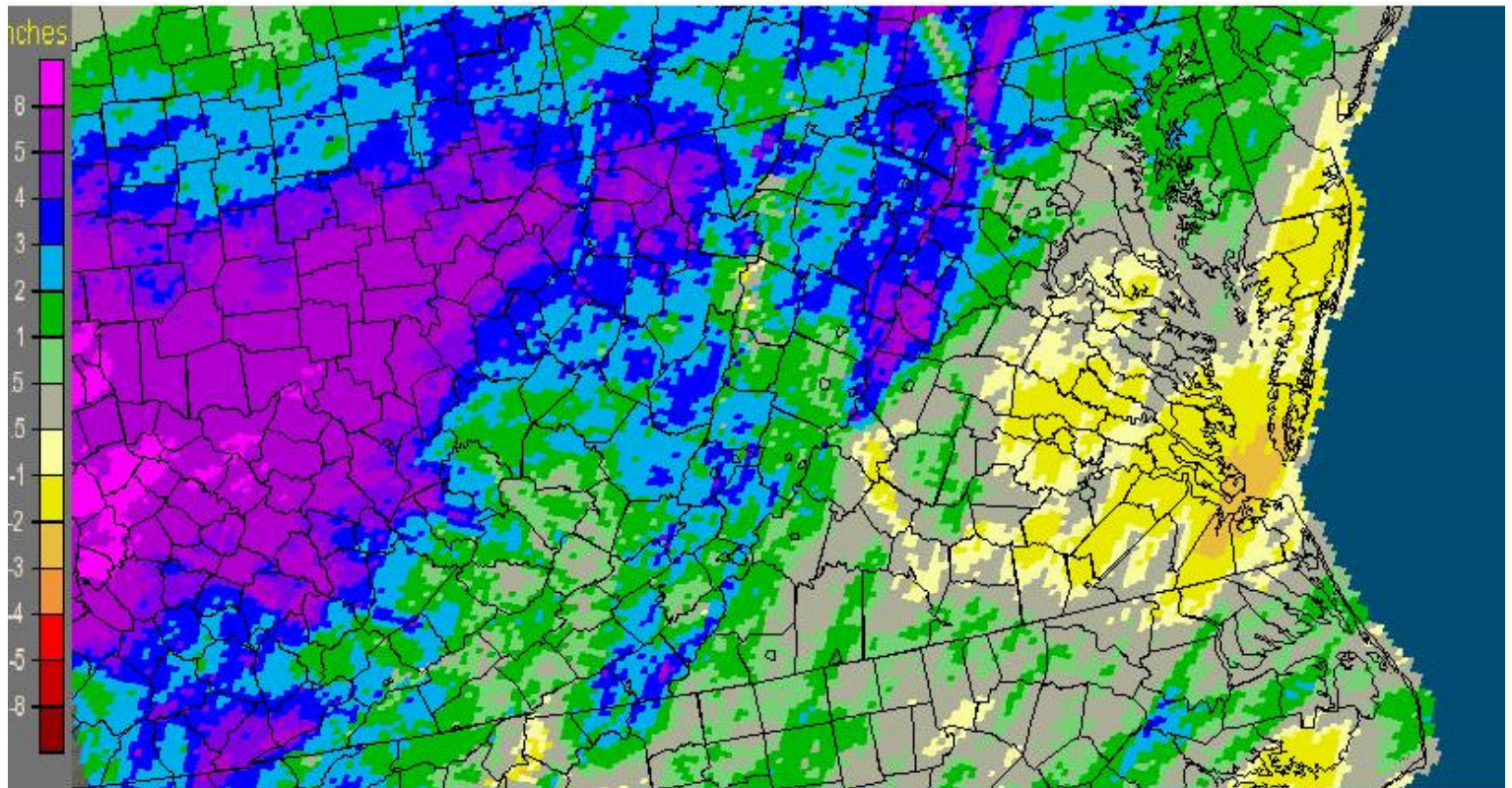
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

# APPENDIX E

## 30-Day Departure from Normal Precipitation Valid April 25, 2011

Virginia: Current 30-Day Departure from Normal Precipitation

Valid at 4/25/2011 1200 UTC- Created 4/25/11 16:21 UTC



# APPENDIX F

## Condition of Public Water Supplies

### April 15, 2010

**ODW Drought Situation Report**

Date: **4/15/11**

	<b>Restriction totals</b>	<b>Population Totals</b>
Mandatory	1	2,134
Voluntary	5	22,616
<b>Total</b>	<b>6</b>	24,750

N-None  
M-Mandatory  
V-Voluntary

B-Better  
S-Stable/Same  
W-Worse

<b>PWSID</b>	<b>Waterworks</b>	<b>Source Name</b>	<b>Restrictions</b>	<b>Situation</b>	<b>Population Served</b>
3081550	GCWSA - Jarratt	Nottoway River	N	<b>S</b> - 04/11/2011 - River level sufficient to allow plant operation at 1.9 mgd. Gage at Stony Creek indicates 3.64 feet.	7,190
3550051	Chesapeake	Northwest River, City of Norfolk Raw Water (Lake Gaston)	N	<b>S</b> -04/12/2011 Total rainfall for April is 1.65 inches. There are no water restrictions in Chesapeake. Chlorides are used as an indicator of drought, the higher the levels the more concentrated the contaminant in a lesser amount of surface water. They remain low at 41 mg/l. Continuing to purchase raw water from Norfolk (7.0 MGD average). The NWR WTP has been off-line during the month due to repairs.	104,722

3595250	Emporia	Meherrin River	N	<b>S</b> - 04/11/2011 - Reservoir level sufficient for normal operation.	5,600
3670800	Virginia-American Water Company (Hopewell)	Appomattox & James Rivers	N	<b>S</b> - 04/11/2011 - Level at intakes sufficient to supply plant. MIB (taste & odor) detected in raw water and finished water.	28000 - Primary / 45463 Total including Consecutive System (Ft. Lee)
3700500	Newport News	Chickahomony River, Skiffs Creek, Diascand, Little Creek, Harwoods Mill, Lee Hall	N	<b>W</b> - 4/10/11 * Reservoir Status: 96.2 % Full ( <b>down 0.9%</b> ) * 35.9 Million Gallons Delivered	414,000
3710100	Norfolk	Lake Prince, Lake Burnt Mills, Western Branch reservoir, Nottoway River, Blackwater River, 4 western wells; Little Creek reservoir, Lakes Smith, Lawson, Whitehurst, and Wright. Lake Gaston.	N	<b>B</b> - As of 04/11/11, reservoirs at 96.4% (up from 90.2% on 03/07/11). Historic reservoir capacity is 95.8% at this time of year. Avg. pumping from Lake Gaston = 44.54 MGD. Total Reservoir Storage = 14,667 MG.	261,250 - Primary / 755,617 - Total including consecutive systems (Va Beach + military bases).
3740600	Portsmouth	Lakes Cohoon, Meade, Kilby, and Speights Run	N	<b>S</b> - As of 04/08/11, reservoirs at 100% (from 100% on 03/04/11 ). Median reservoir capacity is 100% for the month and historical average capacity is 99% (period of 1969-2008). The emergency wells are OFF.	100,400 - Primary / 120,400 Total including consecutive systems (military bases)
3800805	Suffolk	Lone Star Lakes, Cumps Mill Pond	N	<b>B</b> -04/12/2011-Will follow Portsmouth's lead and the region as far as conservation. Received 0.71 inches of rain from 04/7/2011 through 04/10/2011. Average reservoir levels : Southern Lakes at 90.00% capacity, for the	66,631

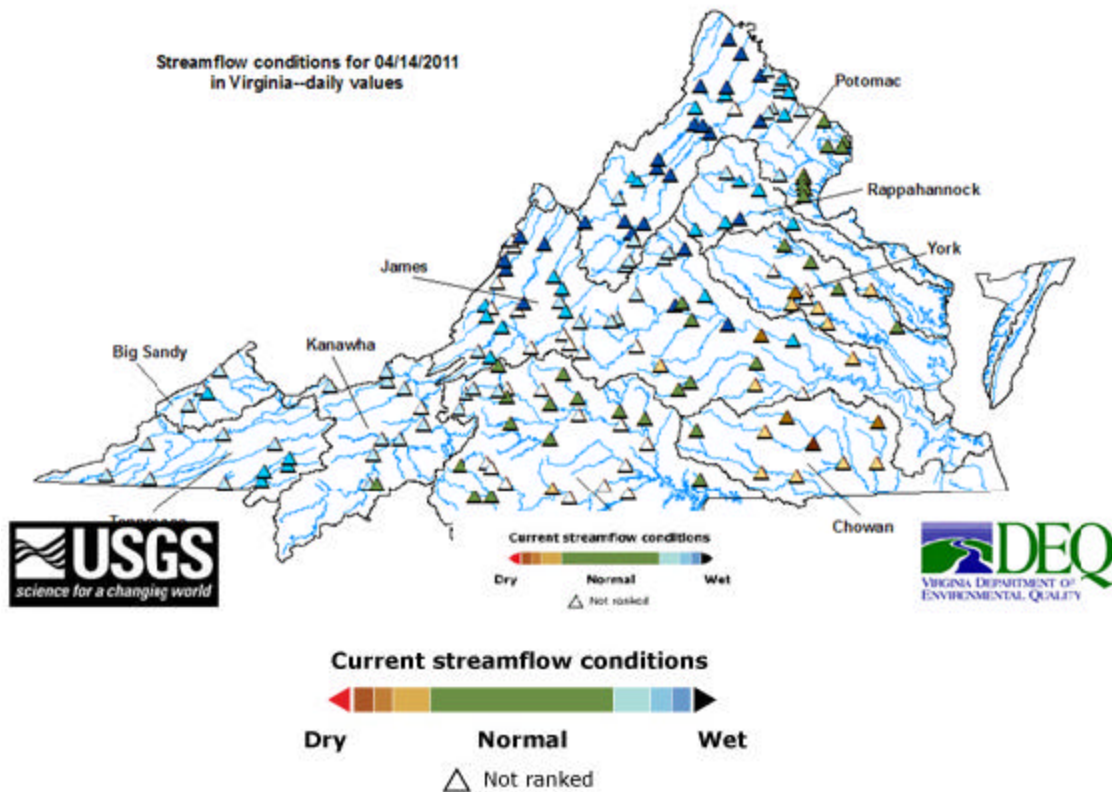
				Northern Lakes at 100% and Crumps Mill Pond at 96.59% . No conservation measures implemented at this time but will continue to monitor.	
3830850	Williamsburg	Waller Mill Reservoir	N	<b>S</b> - 4/12/11: 7.5" above primary spillway - about 96% of usable capacity.	16,400
4041035	APPOMATTOX RIVER WATER AUTHORITY	Surface water; Lake Chesdin	N	<b>S</b> - Wholesaler to Chesterfield County, Prince George County, Dinwiddie County; Cities of Petersburg and Colonial Heights. All restrictions have been lifted. The reservoir is 0.5 inches below full.	<b>200,000</b>
4041845	CHESTERFIELD CO CENTRAL WATER SYSTEM	Surface water; Swift Creek reservoir; purchases finished water	N	<b>S</b> - Purchases water from the City of Richmond and the Appomattox River Water Authority. All restrictions have been lifted. The reservoir is full.	286,000
4057800	TAPPAHANNOCK , TOWN OF	Groundwater wells	N	<b>S</b>	2,100
4073311	GLOUCESTER CO WATER TREATMENT PLT	Surface water, Beaverdam reservoir; 2 deep groundwater wells	N	<b>S</b> -Reservoir is full.	12,000
4075283	EASTERN GOOCHLAND CENTRAL WATER SYSTEM	Purchased surface water	V	<b>S</b> -purchases water from Henrico County	2,500
4075735	JAMES RIVER CORRECTIONAL CTR	Surface water; James River	N	<b>S</b> - Conservation at all DOC facilities	9,300
4085398	HANOVER SUBURBAN WATER SYSTEM	Surface water; North Anna River; some groundwater wells; purchases finished water	N	<b>S (see Richmond)</b>	71,000
4085770	SPRING MEADOWS-MEADOW GATE	Groundwater wells	N	<b>S</b>	2,300

4087125	HENRICO COUNTY WATER SYSTEM	Surface water; James River	N	<b>S (see Richmond)</b>	289,000
4101900	WEST POINT, TOWN OF	Groundwater wells	N	<b>S</b>	3,000
4127110	DELMARVA PROPERTIES	Groundwater wells	N	<b>S</b> -New Kent Co. encourages conservation at all county owned waterworks.	7,700
4145675	POWHATAN COURTHOUSE	Groundwater wells	N	<b>S</b>	2,600
4193280	COLONIAL BEACH, TOWN OF	Groundwater wells	N	<b>S</b>	3,300
4760100	RICHMOND, CITY OF	Surface water; James River	N	<b>S</b> - water levels do not affect intake; James River Regional Flow Management Plan set restrictions based on James River level for counties of Henrico, Chesterfield, Goochland, and Hanover counties, which purchase water from the City.	197,000
6047500	Town of Culpeper	Surface water - Lake Pelham	N	<b>S</b> - Lake Pelham level was 4.5" above overflow invert on 4/12/11.	14,200
6059501	Fairfax Water	Surface Water - Potomac River and Occoquan Reservoir	N	<b>S</b> - 4/11/11 - Potomac River is flowing at about 16,000 cuft/sec, which is safely above the watch level. Occoquan Reservoir is full.	823,216 primary 1.8MM total
6061200	Marshall	Groundwater	<b>M</b>	<b>S</b> - The WSA Alert Messaging Service maintains the Water Use Restriction Notice as of 4/12/2011. The mandatory water use restriction is not directly drought related but depends on water source	2,134

				development.	
6061600	Town of Warrenton	Surface (Cedar Run) and groundwater	V	S-On Tuesday April 12, Warrenton Reservoir surface was at 445.7 ft vs full level of 445.3 ft.	11,160
6107150	Town of Hamilton	Groundwater	V	<b>B</b> - 4/11/11 Voluntary water use restrictions initiated 7/6/2010 anticipated to be lifted in the near future. No supply problems.	2,000
6107300	Town of Leesburg	Surface Water - Potomac River	N	S - 4/11/11 - Potomac River is flowing at about 16000 cuft/sec, which is safely above the watch level.	46,300
6107600	Town of Purcellville	Surface water/groundwater	V	S - 4/11/11 - Surface water reservoir is full and is overflowing. Voluntary water conservation initiated 7/2/10. No water supply problems.	6,300
6107650	Town of Round Hill	Groundwater	V	S - 4/11/11 - Voluntary water use restrictions replaced mandatory on 10/21/10. No problems.	3,156
6137500	Town of Orange	Surface: Rapidan River	N	S - 14-day average of Rapidan River flow was 530 cfs on 4/12/11.	4,500
6137999	Wilderness	Surface - Rapidan River	N	S	11,331
6600100	City of Fairfax	Surface Water	N	<b>B</b> - 4/11/11 Goose Creek flow has been sufficient. Beaver Dam Reservoir is full.	24,000

# APPENDIX G

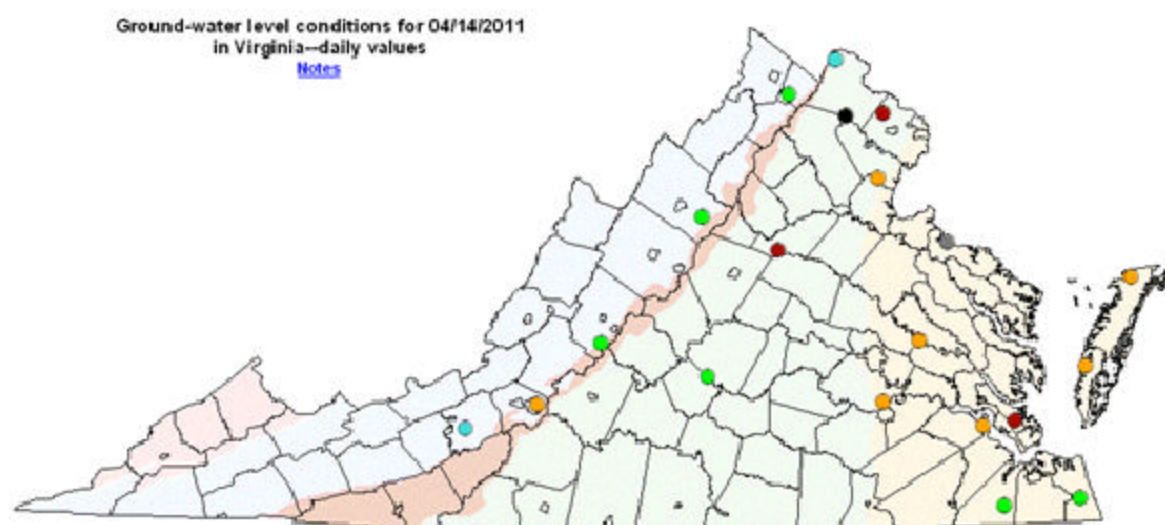
## USGS Streamflow Conditions for April 14, 2011



**Figure 1.** Streamflow conditions in Virginia for April 14, 2011

# APPENDIX H

## Groundwater level conditions for in Virginia April 14, 2011

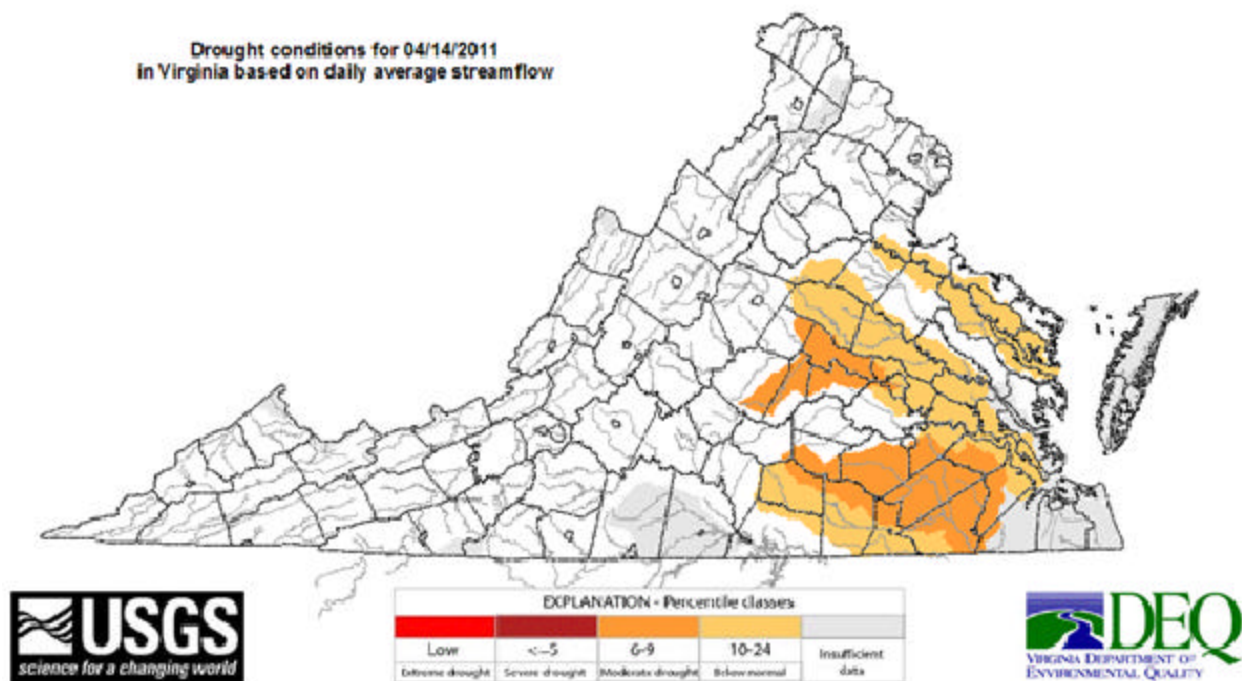


Explanation - Percentile classes (symbol color based on most recent daily value.)									
<span style="color: red;">●</span>	<span style="color: brown;">●</span>	<span style="color: darkred;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: darkblue;">●</span>	<span style="color: black;">●</span>	<span style="color: gray;">●</span>
New Low	<5	5-10	10-24	25-75	76-90	90-95	>95	New High	Not Ranked
	Well Below Normal		Below Normal	Normal	Above Normal	Well Above Normal			

**Figure 2.** Groundwater-level conditions in Virginia for April 14, 2011

# APPENDIX I

## 1-Day Average Streamflow Statistics in Virginia April 14, 2011



**Figure 3.** Drought Conditions Based On Average Daily Streamflow for April 14, 2011